NAME

hpsa - HP Smart Array SCSI driver

SYNOPSIS

modprobe hpsa [hpsa_allow_any=1]

DESCRIPTION

hpsa is a SCSI driver for HP Smart Array RAID controllers.

Options

hpsa_allow_any=1: This option allows the driver to attempt to operate on any HP Smart Array hardware RAID controller, even if it is not explicitly known to the driver. This allows newer hardware to work with older drivers. Typically this is used to allow installation of operating systems from media that predates the RAID controller, though it may also be used to enable **hpsa** to drive older controllers that would normally be handled by the cciss(4) driver. These older boards have not been tested and are not supported with **hpsa**, and cciss(4) should still be used for these.

Supported hardware

The **hpsa** driver supports the following Smart Array boards:

Smart Array P700M
Smart Array P212
Smart Array P410
Smart Array P410i
Smart Array P411
Smart Array P812
Smart Array P712m
Smart Array P711m
StorageWorks P1210m

Configuration details

To configure HP Smart Array controllers, use the HP Array Configuration Utility (either **hpacuxe(8)** or **hpacucli(8))** or the Offline ROM-based Configuration Utility (ORCA) run from the Smart Array's option ROM at boot time.

FILES

Device nodes

Logical drives are accessed via the SCSI disk driver (sd(4)), tape drives via the SCSI tape driver (st(4)), and the RAID controller via the SCSI generic driver (**sg(4)),** with device nodes named */dev/sd**, */dev/st**, and */dev/sg**, respectively.

HPSA-specific host attribute files in /sys

/sys/class/scsi_host/host/rescan*

This is a write-only attribute. Writing to this attribute will cause the driver to scan for new, changed, or removed devices (e.g,. hot-plugged tape drives, or newly configured or deleted logical drives, etc.) and notify the SCSI midlayer of any changes detected. Normally a rescan is triggered automatically by HP's Array Configuration Utility (either the GUI or the command-line variety); thus, for logical drive changes, the user should not normally have to use this attribute. This attribute may be useful when hot plugging devices like tape drives, or entire storage boxes containing preconfigured logical drives.

/sys/class/scsi_host/host/firmware_revision*

This attribute contains the firmware version of the Smart Array.

For example:

```
# cd /sys/class/scsi_host/host4
# cat firmware_revision
7.14
```

HPSA-specific disk attribute files in /sys

/sys/class/scsi_disk/c:b:t:l/device/unique_id

This attribute contains a 32 hex-digit unique ID for each logical drive.

For example:

```
# cd /sys/class/scsi_disk/4:0:0:0/device
# cat unique_id
600508B1001044395355323037570F77
```

/sys/class/scsi_disk/c:b:t:l/device/raid_level

This attribute contains the RAID level of each logical drive.

For example:

```
# cd /sys/class/scsi_disk/4:0:0:0/device
# cat raid_level
RAID 0
```

/sys/class/scsi_disk/c:b:t:l/device/lunid

This attribute contains the 16 hex-digit (8 byte) LUN ID by which a logical drive or physical device can be addressed. *c*:*b*:*t*:*l* are the con troller, bus, target, and lun of the device.

For example:

```
# cd /sys/class/scsi_disk/4:0:0:0/device
# cat lunid
0x0000004000000000
```

Supported ioctl() operations

For compatibility with applications written for the cciss(4) driver, many, but not all of the ioctls supported by the cciss(4) driver are also supported by the **hpsa** driver. The data structures used by these ioctls are described in the Linux kernel source file *include/linux/cciss_ioctl.h*.

CCISS_DEREGDISK, **CCISS_REGNEWDISK**, **CCISS_REGNEWD**

These three ioctls all do exactly the same thing, which is to cause the driver to rescan for new devices. This does exactly the same thing as writing to the hpsa-specific host rescan attribute.

CCISS_GETPCIINFO

Returns PCI domain, bus, device and function and board ID (PCI subsystem ID).

CCISS_GETDRIVVER

Returns driver version in three bytes encoded as:

(major_version << 16) | (minor_version << 8) | (subminor_version)

CCISS_PASSTHRU, **CCISS_BIG_PASSTHRU**

Allows BMIC and CISS commands to be passed through to the Smart Array. These are used extensively by the HP Array Configuration Utility, SNMP storage agents, and so on. See *cciss_vol_status* at Unknown for some examples.

SEE ALSO

cciss(4), sd(4), st(4), **cciss_vol_status(8), hpacucli(8), hpacuxe(8),**

Unknown, and *Documentation/scsi/hpsa.txt* and *Documentation/ABI/testing/sysfs-bus-pci-devices-cciss* in the Linux kernel source tree

COLOPHON

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